Appendix A: Guidelines for Existing Buildings

Goal

Preserve the character and integrity of the existing historic buildings on site. These historic buildings are listed on the National Register of Historic Places and shall be restored as a Phase I component of development.

Modifications of Existing Buildings

Modifications to existing structures should be contextual and high quality. All of the existing buildings in the EDZ are considered historically relevant and should be treated with care. Based on the date and original use of these buildings, modifications will be necessary to accommodate modern uses.

Basic Level Technical Strategies:

- Design modifications and rehabilitation / restoration shall follow the Secretary of the Interior's Standards. As a part of this process, design plans shall be reviewed by the State Historical Society of Wisconsin to determine the appropriateness of the work. In addition, a separate review by the City of Wauwatosa Historic Preservation Commission is also required. All reviews shall take place prior to the execution of any work on the project.
- Design modifications to existing structures shall not cover or remove existing aesthetic fabric from the primary facade(s) of the structure. *Fronts, sides, and rears of extant buildings with visual prominence shall be considered primary facades.*
- Do not cover a significant material (such as brick) with a lesser material (such as metal panels).
- Screen mechanical equipment modifications from public streets.
- Retain the existing historic building fabric.
- Removal of historic materials is approved only if the area cannot be repaired, consolidated, or if it is proven to be structurally unsound.
- Design modifications and rehabilitation / restorations shall be in-kind replacement of building materials and features when replacement is necessary. "In-kind" replacement states that the original material is substituted using the same material or finish application.

Additions to Existing Buildings

Additions to existing structures should be contextual and high quality.

Basic Level Technical Strategies:

- Additions shall be evident as such and not create a false sense of history, while still maintaining the overall visual appearance of continuity.
- Additions shall not remove existing historic fabric from the building. No addition may intrude on a primary facade of a existing building. An intrusion is any form or element that blocks, obstructs, or cuts off access or view to the building.
- Support existing patterns. Maintain building proportions and scale while allowing for the use of modern materials and details. Additions shall compliment the existing structure in material use, architectural details, and color.
- Rhythmic elements such as roof lines, roof forms, dormers, window openings, spandrel lines, and pilasters shall be carried over onto the addition.
- Screen mechanical equipment from public view.
- Additions shall not intrude on interior historic elements that have valuable contribution to the building context.
- Rear additions may not be taller than the existing structure. No addition shall alter the current visible rooflines from the street.
- Rooftop additions shall be set back from the building edge and not viewable from the street.

Benefits

Maintaining a sense of County Grounds history and identity. Preserve high quality historic buildings that evoke the past use of the site and our local architectural heritage.

Costs and Savings

Rehabilitating or restoring a building is the ultimate act of recycling. The costs of constructing a building to the quality of the existing buildings on site far outways the cost incurred by restoration.

Substantial historic tax credits and grants are available at the state and federal level to help mitigate the costs of rehabilitation and restoration. Numerous private funding sources are also available. See *www2.cr.nps.gov/tps/index.htm*.

Fig. A-1: Appropriate addition to a 1890s building.

Handicapped Accessibility

The Americans with Disabilities Act (A.D.A.) of 1990 mandates handicapped accessibility. This federal law requires that all owners of "public accommodations" (theatres, restaurants, museums, retail shops, etc.) must make readily available alterations to provide appropriate access to disabled persons. This issue not only effects buildings but parking lots, sidewalks, entrances, stairs, elevators, and restrooms.

Basic Level Technical Strategies:

To identify and implement accessibility alterations while maintaining the historic integrity of the property:

- Review the historical significance of the property.
- Identify character defining features.
- Research the property's existing and required level of accessibility.
- Evaluate accessibility options against their impact of historical features.

Readily Achievable Accessibility Modifications:

Sites and Entrances

- Designating accessible parking spaces
- Make curb cuts.
- Incorporate ramps.
- Regrade at entrance.
- Install wheel chair lifts.
- Consider a new entrance.
- Retrofit doors.
- Adapt door hardware.
- Alter door thresholds.

Interiors

- Reposition shelves.
- Reposition telephones.
- Install flashing alarm lights.
- Add raised markings on elevator control buttons.
- Add an accessible drinking fountain.
- Install an elevator or wheelchair lift.

Restroom

- Install grab bars in toilet stalls.
- Rearrange toilet partitions.
- Reposition of restroom accessories (mirrors, paper towel dispensers, etc.)
- Install higher toilet seats.

More information on this issue and A.D.A. requirements can be obtained at: www.adata.org.

Mechanical Equipment

It is inevitable that a building owner will wish or need to upgrade mechanical systems or building equipment.

Basic Level Technical Strategies:

- Utility meters and exhaust vents shall be located on the rear or side of the building.
- Mechanical equipment on roofs shall not be visible from the street.

Alternatives:

- Mechanical equipment may be located openly on the roof if it is set back from the building edge so that it is not visible from the street. Equipment viewable from the upper stories of adjacent building shall be screened compatibly with the building materials.
- Parapet walls or screening may be added to conceal equipment. This wall must be in character with the building facade aesthetics.
- Locate mechanical equipment on the ground in the rear or side yard of the building. In situations where this equipment would be visible from the street, an enclosure shall be erected. The enclosure shall be made in materials and colors similar to that of the building.

Appendix B: Approved Architectural and Landscaping Materials

Goal

Maintain the continuity and quality of building and site design in the EDZ based on the precedents established by the historic buildings on site.

Appropriate Uses of Materials

Basic Level Technical Strategies:

- The placement of materials on the building shall be determined by their size and scale. Heavier, larger sized units are appropriately used as the building base and act as a visual grounding. Visually lighter, thinner materials are more appropriate higher on the building for use as trim pieces or ornamentation. It is important to distinguish the terms "lighter" vs. "heavier." A material that is in reality thinner, such as cast concrete, may be used as a building base. However, this material should be formed in a manner in which the final result is consistent with the visual appearance of natural stone.
- Material transitions should meet at a change in plane, for instance an inside corner. Materials shall not transition directly on an outside corner. Corner trim pieces may also be used when style appropriate.
- Logical transition points for material change include:
  - *Water Table Line*
  - *Floor Levels*
  - *Window Sills*
  - *Roofline*

Approved Architectural Materials

Wall Siding / Surfacing

- Brick

  Oversize or large size bricks are also acceptable either as an accent or used as the predominate material. In all instances adding detail through the use of decorative banding and color or texture transitions is strongly encouraged.
- Cement Board Siding
- Clapboard Siding
- Concrete Masonry Units (CMU)

  The use of CMU is acceptable ONLY as a secondary material. Use of split-face, ground-face, or rusticated CMU shall be limited to 20% of the overall surface. The use of exposed, plain CMU is not acceptable for use. Colored split-face block shall be intregal, no painted finishes shall be permitted.
- Exterior Insulated Finish System (EIFS)

  The use of EIFS is acceptable ONLY for use on non-primary / accent wall surfaces. This material shall not be used to cover trim, molding, or decorative detail. This material shall not be used on existing historic buildings or their additions.
- Half-Timbering

  Typically dark stained wood applied to the surface of a building in an open lattice-work or geometric pattern. The space between this wood is filled either with brick or stucco.
- Precast Concrete and Cast Stone

  Precast concrete and cast stone are acceptable alternatives to natural stone. Due to a wide range of finish detail available this finish will de reviewed by the City of Wauwatosa Design Review Board.
- Stone

  Several fieldstone and limestone examples are evident throughout the community. The use of these stone precedents is encouraged. The Lannon Stone variety of limestone is locally dominant.
- Stucco

  Stucco finishes shall be smooth, sanded, or hand-trowel only. No "cake icing" finishes. Score marks are acceptable on stucco finishes. Intregal or painted color finishes are acceptable for use.
- Wood or Cement Shingle Siding

Roof Coverings

Flat Roof Coverings

- Ballasted Roofing

  Acceptable roofing surface on building types with a very low pitched or flat roof concealed with a parapet.
- Built-Up Roofing

  Acceptable roofing surface on building types with a very low pitched or flat roof concealed with a parapet.
- Concrete Paver Roofing

  Acceptable roofing surface on building types with a very low pitched or flat roof concealed with a parapet.
- Green / Vegetated Roof System

  The use of this environmentally friendly roofing is encouraged for use on flat roof concealed with a parapet, see a detailed description on page A-9.
- Rubber Membrane Roofing

  Acceptable roofing surface on building types with a very low pitched or flat roof concealed with a parapet.

Pitched Roof Coverings

- Asphalt and Fiberglass Shingles

  Shingles shall consist of, at minimum, architectural grade with shadowed edges.
- Glazed or Unglazed Clay Tile

  This material is most effectively used on steeply pitched roofs.
- Cement Tile
- Slate

  This material is most effectively used on steeply pitched roofs.
- Standing Seam Metal

  Powder-coated finishes are acceptable within this category. *Note: Copper is not permitted as it leached harmful acids into the soil.*
- Wood Shingles and Shakes

  This material is most effectively used on steeply pitched roofs. Wood shingles or shakes shall not be painted. Staining and fire-retardent coatings are permitted.

Details and Ornamentation

- Metals

  The use of unfinished, exposed metals shall not be permitted. Metals shall be anodized, painted, or power-coated with the following exceptions. Galvanized metal is an acceptable finish for use as standing seam metal roofing, adjacent gutters and downspouts, as well as custom canopy conditions and shingles.
- Ornamental Metals

  Material such as iron, steel, galvanized sheet, and aluminum may be used for railing, trim, grills, panels, flashing, etc. when appropriate to the architectural styling of the building.
- Pressure Treated Wood (exposed and unfinished)

  Any use of this material on the primary facade of a building must have a painted finish. This material may remain "unfinished" or exposed where used for back porches, subsequent supports, and decks, as well as related supports and details.

Approved Hardscape Materials

Structural Materials

- Brick
- Cast or Wrought Iron
- Concrete (for use in sidewalks and walkways only)
- Concrete or Clay Unit Pavers
- Cultured Stone
- Ground-Face Block
- Rock
- Split-Face Block (will be evaluated on a case-by-case basis by the Design Review Board)
- Steel (anodized, painted, or powder-coated)
- Stone (cut, split, or field stone) The use of Lannon Stone is encouraged.
- Wood (rail road ties shall not be permitted for use)

  Note: Sustainably harvested wood is encouraged. Wood treated with arsenic or other toxic chemicals is discouraged.

Approved Planting Materials

The overall design intent for the macro-landscape throughout the property is to restore native ecosystems within the proper habitat established primarily prairie and wetland. The following section describes plant community types that represent a few of the ecosystems that are intended to be reestablished at the site. These descriptions and representative plant lists are meant to communicate the landscape potential and approach to achieve that potential and are not to be used to specify the actual planting. The landscape plans for each stage of development will have to be developed in concert with the site layout, grading, site stormwater, engineering, and architectural plans to accomplish the design objective. This approach will result in a beautiful, healthy landscape as a setting for the businesses and other uses planned here. Once established, these landscapes will also require considerably less maintenance costs than conventional landscapes. Over many years and with proper stewardship practices, they will provide diverse habitats and seed sources for future landscapes within and around Milwaukee.

Ornamental landscapes in areas where it is not possible or practical to restore native plant systems, especially immediately adjacent to buildings, should be planted in a naturalistic way so as to provide the feeling that they are an extension of the native ecosystems around the property.

Prairie

The word prairie is of French origin and means "meadow." It was first applied to the open, grass-covered, treeless landscapes discovered in America by the early French explorers. The mesic prairie will be a de novo (or basically, "from scratch") reconstruction on upland habitats across the site. When established, the vegetation will consist of native grasses and forbs that will form extensive root systems—a condition that will increase infiltration of precipitation, reduce or eliminate runoff, filter pollutants, and recharge groundwater. Once established, the primary maintenance activity is annual prescribed burn management, which is critical to the health and beauty of the prairie landscape. Other maintenance activities include weed control, species enhancement, and monitoring.

Representative List of Common Native Species used in de Novo Mesic Prairie Creations

Species	Common Name
Allium cernuum	*Nodding Wild Onion*
Andropogon gerardii	*Big Bluestem Grass*
Andropogon scoparius	*Little Bluestem Grass*
Aster azureus	*Sky-blue Aster*
Aster ericoides	*Heath Aster*
Aster laevis	*Smooth Blue Aster*
Aster novae-angliae	*New England Aster*
Astragalus canadensis	*Canada Milk Vetch*
Baptisia leucantha	*White Wild Indigo*
Bouteloua curtipendula	*Side-oats Gramma*
Coreopsis lanceolata	*Sand Coreopsis*
Desmodium canadense	*Showy Tick Trefoil*
Echinacea pallida	*Pale Purple Coneflower*
Echinacea purpurea	*Broad-leaved Purple Coneflower*
Elymus canadensis	*Canada Wild Rye*
Eryngium yuccifolium	*Rattlesnake Master*
Helianthus mollis	*Downy Sunflower*
Heliopsis helianthoides	*False Sunflower*
Lespedeza capitata	*Round-headed Bush Clover*

Liatris spicata	*Gay Feather*
Monarda fistulosa	*Wild Bergamot*
Panicum virgatum	*Switch Grass*
Parthenium integrifolium	*Wild Quinine*
Penstemon digitalis	*Foxglove Beard Tongue*
Petalostemum purpureum	*Purple Prairie Clover*
Physostegia virginiana	*Obedient Plant*
Pycnanthemum virginianum	*Common Mountain Mint*
Ratibida pinnata	*Yellow Coneflower*
Rudbeckia hirta	*Black-eyed Susan*
Silphium integrifolium	*Rosin Weed*
Silphium laciniatum	*Compass Plant*
Silphium terebinthinaceum	*Prairie Dock*
Solidago graminifolia	*Grass-leaved Goldenrod*
Solidago rigida	*Stiff Goldenrod*
Solidago speciosa	*Showy Goldenrod*
Sorghastrum nutans	*Indian Grass*
Sporobolus heterolepis	*Prairie Dropseed*
Vernonia fasciculata	*Common Ironweed*
Veronicastrum virginicum	*Culver's Root*
Zizia aurea	*Golden Alexanders*

Wetland

This zone will be comprised of common wetland plants that are native to the southern Wisconsin/northern Illinois region. The vegetation will be established in a zone located near the edge of open water. The width of the zone will vary, and will extend from the shoreline (which, under normal circumstances, will have permanently saturated soils) out to four inches of inundation. Once established, the primary maintenance activity is annual prescribed burn management, which is critical to the health and beauty of the prairie landscape. Other maintenance activities include weed control, species enhancement, and monitoring.

Representative List of Common Native Species used in de Novo Wetland Creations

Species	Common Name
Acorus calamus	*Sweet Flag*
Alisma subcordatum	*Common Water Plantain*
Asclepias incarnata	*Swamp Milkweed*
Aster novae-angliae	*New England Aster*
Aster simplex	*Panicled Aster*
Bidens cernua	*Nodding Bur Marigold*
Boltonia latisquama	*False Aster*

Calamagrostis canadensis	*Blue Joint Grass*
Carex cristatella	*Crested Oval Sedge*
Carex lacustris	*Common Lake Sedge*
Carex stipata	*Common Fox Sedge*
Carex pellita	*Broad-leaved Woolly Sedge*
Carex tribuloides	*Awl-fruited Oval Sedge*
Carex vulpinoidea	*Brown Fox Sedge*
Eupatorium maculatum	*Spotted Joe Pye Weed*
Eupatorium perfoliatum	*Common Boneset*
Helenium autumnale	*Sneezeweed*
Helianthus grosseserratus	*Sawtooth Sunflower*
Iris virginica	*Blue Flag*
Juncus effusus	*Common Rush*
Leersia oryzoides	*Rice Cut Grass*
Lobelia cardinalis	*Cardinal Flower*
Lycopus americanus	*Common Water Horehound*
Mimulus ringens	*Monkey Flower*
Penthorum sedoides	*Ditch Stonecrop*
Physostegia virginiana	*Obedient Plant*
Pontederia cordata	*Pickerel Weed*
Sagittaria latifolia	*Common Arrowhead*
Scirpus atrovirens	*Dark Green Rush*
Scirpus cyperinus	*Wood Grass*
Scirpus pendulus	*Red Bulrush*
Scirpus validus	*Great Bulrush*
Scutellaria lateriflora	*Mad-dog Skullcap*
Silphium perfoliatum	*Cup Plant*
Solidago gigantea	*Late Goldenrod*
Sparganium eurycarpum	*Common Bur Reed*
Spartina pectinata	*Prairie Cord Grass*
Verbena hastata	*Blue Vervain*
Vernonia fasciculata	*Common Ironweed*

Ornamental Landscape

Each garden area around buildings and in programmed outdoor spaces within the property is intended to be a highly ornamental landscape that has a tremendous amount of color, texture, movement, and aroma that will change and be full throughout the four seasons. The plant arrangements will complement one another and be the perfect backdrop for the various water features, terraces, and plazas. Turfgrass is to be used only as a border planting and/or isolated patches or lawns where recreational activities are planned.

Representative List of Common Species used in Ornamental Landscape Creations

	Species	Common Name
	Achillea 'Moon Shine'	*Yarrow*
	Astilbe spp.	*Astilbe*
	Calamagrostis acutiflora 'Karl Foerster'	*Feather Reed Grass*
	Calycanthus floridus	*Sweet Shrub*
	Campanula carpatica	*Bellflower*
	Crataegus mollis	*Downy Hawthorn*
	Crataegus phaenopyrum	*Washington Hawthorn*
*	*Fraxinus americana*	*White ash*
*	*Gymnocladus dioicus*	*Kentucky Coffeetree*
	Hosta spp.	*Hosta*
	Hypericum kalmianum	*St. Johns wort*
	Iris spp.	*Iris*
	Lavandula angustifolia 'Hidecote'	*Lavender*
*	*Liquidambar styraciflua*	*Sweetgum*
	Leucanthemum maximum 'Becky'	*Chrysanthemum*
	Lindera benzoin	*Common Spicebush*
	Liatris spicata 'Kobold'	*Gayfeather*
	Miscanthus sinensis 'Gracillimus'	*Maiden Grass*
	Oenothera berlanderi 'Siskiyou'	*Evening Primrose*
	Ostrya virginiana	*American Hophornbeam*
	Panicum virgatum 'Heavy Metal'	*Switch Grass*
	Quercus bicolor	*Swamp White Oak*
*	*Quercus imbricaria*	*Shingle Oak*
	Quercus macrocarpa	*Bur Oak*
*	*Quercus muhlenbergii*	*Chinkapin Oak*
	Rudbeckia fulgida 'Goldstrum'	*Black-eyed Susan*
	Salvia nemerosa 'Mainacht'	*Salvia*
	Sedum spp.	*Sedum*
	Sporobolus heterolepis	*Prairie Drop Seed*
	Spirea x bumalda	*Bumald spirea*

* Denotes street tree options.

Tree Installation Requirements

- Pull down Burlap from root ball.
- Remove water cage completely.
- No synthetic twine.
- Avoid staking.

* *Refer to the City of Wauwatosa Forester for installation requirements within the public-right-of-way.*

Green Roof

A typical "green roof" for this project will be a thin layer of lightweight engineered soil and drainage medium sporting drought tolerant vegetation such as sedums, grasses, and a few hardy perennials. There are a number of economic and ecological benefits to green roof systems. One benefit of a green roof is its ability to improve the insulating value of a building thus reducing heating and cooling bills. The protective layer of green roof material shields the waterproofing and will add significantly to the life of the roof. Traditional rooftops exposed to solar radiation are made of rapidly disposable materials. Ten to twenty years is the average life-span for a roof in this area. Solar rays degrade materials, as does rapid and excessive heating and cooling of the roof materials. The drainage material, soil, and vegetation help significantly to temper rapid changes in temperature, thus extending the life of the waterproofing. Green roofs also provide significant value to the environment. The vegetation not only consumes rainwater for plant growth thus reducing storm water runoff and associated impacts, but transpires moisture back into the atmosphere to cool summer temperatures.

Typical rooftops generate significant rainwater runoff. Green roofs in contrast, can reduce rainwater runoff by up to seventy percent or more on an annual basis. Even a green roof with only 3 inches of soil can regularly absorb most rainfall events. Across the face of the Midwest, every acre of green roof equates to five to eight hundred thousand gallons of water annually that will never leave the roof system in the form of surface water runoff.

Representative List of Common Species used in Green Roof Creations

Species	Common Name
Andropogon scoparius	*Little bluestem grass*
Anemone canadensis	*Meadow anemone*
Arabis caucasica 'Flore Pleno'	*Flore Pleno arabis*
Aster azureus	*Sky blue aster*
Bouteloua curtipendula	*Side-oats grama*
Campanula poscharskyana	*Serbian bellflower*
Cassia fasciculata	*Partridge pea*
Coreopsis auriculata 'Nana'	*Coreopsis*
Coreopsis lanceolata	*Sand coreopsis*
Danthonia spicata	*Poverty oat grass*
Dianthus allwoodii	*'Helen'*
Dianthus carthusianorum	*Dianthus*
Dianthus deltoides	*Dianthus*
Dianthus gratianopolitanus	*'Tiny Rubies'*
Hystrix patula	*Bottlebrush grass*
Koeleria cristata	*June grass*
Lespedeza capitata	*Round-headed bush clover*
Monarda fistulosa	*Wild bergamot*
Panicum virgatum	*Switch grass*
Petalostemum purpureum	*Purple prairie clover*
Ratibida pinnata	*Yellow coneflower*
Rudbeckia subtomentosa	*Sweet black eyed Susan*
Sedum acre	*Wall pepper*
Sedum floriferum	*Sedum*
Sedum hybridum	*Sedum*
Sedum kamtschaticum	*Orange stonecrop*
Sedum 'Mochren'	*Mochren sedum*
Sedum reflexum	*Sedum*

Sedum sexangulare	*Sedum*
Sedum spectible 'Matrona'	*Matrona sedum*
Sedum spurium	*Sedum*
Sedum 'Vera Jameson'	*Vera Jameson sedum*
Sporobolus heterolepis	*Prairie dropseed*
Thymus praecox 'Coccineus'	*'Coccineus'*
Thymus praecox 'Albiflorus'	*'Albiflorus'*
Thymus serpyllum	*Thymus*

Appendix C: Opportunities and Incentives for Sustainable Design

Goal

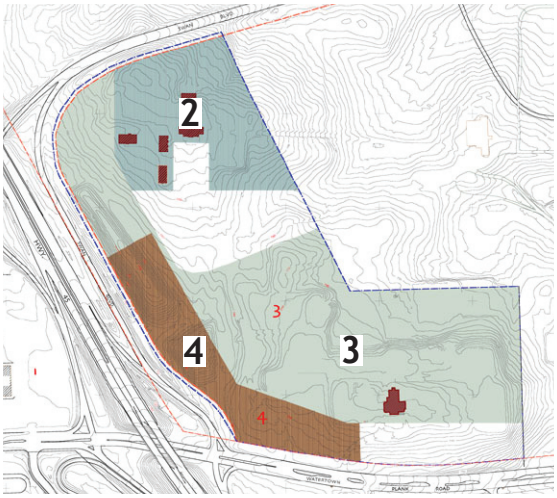
Encourage sustainable development by offering incentives to developers who incorporate particularly desirable features.

Building Height

Developers who utilize structured (above ground or underground) parking or "parking fields" may qualify for incentives in the form of additional building height. See the City of Wauwatosa Department of Community Development to determine if your building project is eligible.

Incentives will be based on the following criteria:

- Building and Site Location
- Adjacencies to Historic Buildings
- Soil Conditions
- Existing Topography



Legend

2 story maximum zoned height
3 story maximum zoned height
4 story maximum zoned height

Fig. C-1: Building Height Zones.

Government Incentives

Source:	Federal
Name:	**Solar and Geothermal Business Energy Tax Credit**
Eligibility:	Commercial/Industrial Sectors
Use of Funds:	Solar water heat, active solar space heat, solar thermal process heat, photovoltaics, and geothermal electric.
Amount:	10% max. limit $25,000 per year plus 25% of the total remaining after the credit is taken.
Resource:	www.mdv-seia.org/federal_incentives.htm
Name:	**5-Year Accelerated Capital Depreciation for Solar Energy Property**
Eligibility:	Commercial Sector
Use of Funds:	Equipment that utilizes solar energy to generate electricity.
Amount:	100% over 5 years.
Resource:	Consult your tax advisor or accountant.

SOURCE:	U.S. DEPARTMENT OF ENERGY (DOE)
Name:	**Inventions and Innovation Program**
Eligibility:	U.S. Citizens, U.S. owned small businesses, or institutions of higher learning.
Use of Funds:	Conducting early development and establishing technical performance or innovative, energy saving ideas, and inventions.
Amount:	Phase I: $100,000, Phase II: up to $40,000.
Resource:	marilyn.burgess@ee.doe.gov
Name:	**Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs**
Eligibility:	Small business, defined as for-profit organization with no more than 500 employees. STTR grants must involve a substantial cooperative research collaboration between a small business and a non-profit research institution.
Use of Funds:	Energy efficiency and renewable energy: zero net energy buildings, low cost power electronics and sensors for distributed energy resources, bioproducts and bioenergy research, heat transfer research, recovery, recycle and reuse of energy intensive materials, and reactive separations.
Amount:	SBIR Phase I: up to $100,000; SBIR Phase II: up to $750,000; STTR Phase I: up to $100,000; STTR Phase II: up to $500,000.
Resource:	http://sbir.er.doe.gov/sbir

SOURCE:	U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
Name:	**Small Business Innovation Research Program**
Eligibility:	Small business, defined as for-profit organization with no more than 500 employees. Grants for research and development.
Use of Funds:	Monitoring and control of air pollution, safe buildings and water security, wastewater management, etc.
Amount:	Phase I: $70,000, Phase II: up to $225,000.
Resource:	http://es.epa.gov/ncerqa/sbir/index.html

GRANT INFORMATION

In accordance with issues and design alternatives identified by this master plan, a number of sources have been listed that may be available to help fund construction and implementation. The proposed issues and design alternatives include but are not limited to: innovative stormwater management techniques (BMP's), energy conservation, green roof construction, permeable pavement, trails, ecological restoration and native landscaping, signage, education, and cooperation with upstream landowners in regards to stormwater management.

The Kresge Foundation
The Kresge Foundation of Troy, Michigan's Green Building Initiative is available to nonprofit leaders to examine their planning and design processes so that they can assess the environmental impact of their facilities. The Foundation is adding the incentive of planning and bonus grants that are available on a limited basis. The Foundation is also making available a series of educational materials designed for non-profits to help them understand the green approach and consider it next time they build.
For further information on the Green Building Initiative see: www.kresge.org/initiatives/index.htm

M.R. Bauer Foundation
Areas of interest include education, environment/animal-related, open-space, parks, beautification, public affairs/society benefits, and others. Funds projects, construction, and renovation, among other things. Range: $250 to $261,000. Average: $7,000. Eligible: 501c3.

William Blair and Company Foundation
Areas of interest include education, environment/animal-related, beautification, open-space, parks, religion, Roman Catholic Religious Programs, and others. Funds projects, construction, renovation, and equipment. Eligible: 501c3.

Helen Brach Foundation
Areas of interest include environment/animal-related, scientific, education, and others. Eligible: 501c3. Estimated range: $10,000 to $50,000.

Material Service Foundation
Areas of interest include education, environment/animal-related, energy and resource conservation, and others. Types of support: construction, renovation. Eligible: 501c3. Range: $50 to $25,000. Average: $500.

INDIRECT (through a governmental or non-profit partner):

USEPA Environmental Education Grants
Provides support for projects that design, demonstrate, or disseminate environmental education practices, methods, or techniques. Projects must focus on one: improving EE teaching skills, educating teachers, students or public, building capacity for EE, promoting environmental careers, educating public through community organizations or media, educating low income or culturally diverse audiences about the environment, using EE to advance educational reform. Eligible: Local agencies and nonprofits. Range: $5,000 to $25,000 (Regional) or $25,001 to $250,000 (National). 25% match.

USEPA Surveys, Studies, Investigations (CWA 104b3)
"Surveys, Studies, Investigations, Demonstrations and Training Grants." Supports demonstrations (and other activities) related to the "causes, effects, extent, prevention, reduction, and elimination of water pollution." Priority topics include water quality improvement, watersheds management, aquatic restoration, nonpoint source management, wetlands protection, and others. Eligible: universities, public institutions, nonprofits. Range of funding: $1,000 to $500,000. Unsolicited proposals due before May 15th, otherwise follow deadlines in RFPs. No match requirement.

USEPA 319: Nonpoint Source Pollution Grants
Grants are available through the State of Wisconsin to local units of government, nonprofit organizations, community groups. Projects must address water quality issues relating directly to non-point source pollution. Funds can be used for the installation of best management practices. The Maximum Federal funding available is 60 percent (40% match). Funding to implement cost-effective, corrective, and preventative BMPs – funding for the demonstration of new and innovative BMPs that control pollution and improve water quality. Deadline August 1st. Needs to be collaborative and have a local watershed partnership.

Appendix D: Case Studies / Design Examples

Goal

Encourage sustainable development by demonstrating the benefits through case studies of actual projects.

Case Studies Overview

The following examples of sites and buildings have integrated sustainable ideas. Some have sought a LEED™ certification while others have not. It should become clear through these examples that it does not take a LEED™ certification for sustainable ideas to have a positive effect on the efficiency and worker productivity in a building, or the beauty and maintenance of a site. It also does not mean that implementing sustainable ideas will cause dramatic capital cost increases which will never be recovered.

The general economic benefits of high performance buildings (office, retail, or otherwise) alone find that over a building's 40-year life, construction costs amount to only 11%, whereas operation and alteration costs total as much as 75%. This is where performance efficiency makes sound fiscal sense. Other important factors to consider include:

- EPA Energy Star partners are averaging a 30% to 40% *Return on Investment* on retrofits with high efficiency lighting alone.
- With poor indoor air quality ranked by the EPA as the fifth greatest health threat, the average legal settlement is $500,000. Healthy buildings significantly reduce the risk of lawsuits.

Johnson Controls, in their own research on the economic benefits of high performance buildings such as the ones shown here, have found the following:

- Lower Construction Costs
  - Reduced site preparation and landscaping costs
  - Lower waste disposal costs by 50% to 98%
  - Downsized mechanical equipment needs
- More Satisfying and Productive Environment
  - Better tenant and worker attraction and retention
  - Up to 45% less absenteeism
  - Up to 16% higher worker productivity
- Reduced Insurance and Risk of Liability
  - Healthy occupants and greater occupant satisfaction
  - Lower environmental impact
  - Streamlined regulatory approvals
- Reduced Operating Costs
  - Lower utility costs by 20% to 50%
  - Reduced maintenance costs
- Higher Valuation of Building
  - Divide reduction in annual operating costs by 10% to get increased value of the building
  - Longer lifespan through durable materials
- Higher Visibility and Marketability of the Site
  - Improved public perceptions
  - Innovative, quality features

Case Study 1 includes some similar information and cost comparisons for sustainable landscape practices.

The following examples are purely representative. There are an increased number of sustainable buildings and landscapes constructed each year. For additional information and case studies, contact any of the following:

- Wisconsin Green Building Alliance (www.wgba.org)
- Wisconsin Focus on Energy (www.wifocusonenergy.com)
- US Green Building Council (www.usgbc.org).
- Chicago Center for Green Technologies (www.cityofchicago.org/Environment/GreenTech/).

Case Study 1: Tellabs, Naperville Facility

The progressive storm water management system at Tellabs, Naperville has been designed to accommodate water where it falls, allowing it to manifest itself as a resource, rather than generating a waste product to be dealt with elsewhere. Through the use of innovative storm water collection and treatment systems, in combination with the natural water conserving attributes of the deep-rooted native prairie plants, the goal is to restore, as nearly as possible, a pre-settlement form of hydrology back to the site. This would mimic the groundwater dominated pattern of hydrology that was prevalent historically throughout the region. Instead of a conventional storm water management system that conveys water from the site as quickly as the law allows, typically in an enclosed storm sewer system, the Tellabs approach will serve to improve water quality while minimizing the volume and velocity of runoff by modeling storm water systems on natural hydrological processes. Surface water runoff will be handled in a combination of naturalized swales, parking lot island bioswales that incorporate french drains with perforated pipes, and other infrastructure measures such as dry wells and level spreaders designed to cleanse and absorb water on-site, thus dramatically reducing the amount of storm water that leaves the site. Diverse native plant communities cover most open space areas and incorporate walking trails, overlooks, and naturalized detention basins as amenities for employees.

Fig. D1-1: Tellabs, Naperville Facility Site Plan

Fig. D1-2: Water Feature

Fig. D1-3: Water Feature

Fig. D1-4: Overland Bioswale

Fig. D1-5: Overlook

Fig. D1-6: Parking Lot Bioswale

Landscape Costs

Over a 10 year period the costs of constructing and maintaining a sustainable landscape is nearly half that of a traditional landscape. The following comparisons were created for the Tellabs Facility.

The following comparison is based on the landscape features required for a 27 acre corporate landscape, excluding site amenities such as hardscape.

Item	Traditional Landscape	Sustainable Landscape
Trees	Per Code (including aesthetic additions)	Per Code
Shrubs	2,000 @ $35.00 = $70,000	1000 @ 35.00 = $35,000
Perennials	8,000 @ $8.00 = $64,000	5,000 @ 8.00 = $40,000
Irrigation System	27 acres @ $15,000 = $400,000	
Stormwater Management System	$335,000 (per engineer)	$300,000
Turfgrass Lawn (Sod)	3.5 acres @ $17,500 = $61,250	$0.00
Turfgrass Lawn (Seed)	23.5 acres @ $4,356 = $102,366	3.5 acres @ $4,356 = $15,246
Native Plants	$0.00	23.5 acres @ $6,000 = $141,000
Subtotal	**$646,616.00**	**$531,246.00**

Annual Long-term Management

The following comparison is based on the landscape features required for a 27 acre corporate landscape.

Year 1	$81,000	$51,000
Year 2	$89,000	$86,400
Year 3	$89,000	$45,900
Year 4	$89,000	$81,000
Year 5	$89,000	$40,500
Year 6	$81,000	$35,100
Year 7	$81,000	$13,500
Year 8	$81,000	$35,100
Year 9	$81,000	$13,500
Year 10	$81,000	$35,100
Ten Year Totals	**$842,000**	**$437,100**
Year 11 +	$108,000	$14,715
Subsequent Years	$81,000	$14,715

Case Study 2:
Coffee Creek, Chesterton, Indiana

Some of the world's most desirable communities are based upon design principles that integrate people into their neighborhoods and cherish the environment as an asset to the community. Coffee Creek Center is such a community. The project incorporates sustainable ideas pertaining to environmental design, new urbanism, and ecological restoration of the landscape. Integral to the planning process was the development of an innovative stormwater management system that re-established a stable groundwater-based hydrology similar to that found in pre-settlement conditions. This was achieved through the use of a 'level spreader' system that is comprised of perforated, plastic pipe embedded in gravel just a few inches below the ground. This system meets Coffee Creeks detention requirements for a particular area of urban development and will take surface runoff from roads, parking lots, and buildings allowing that water to infiltrate into the ground and re-enter Coffee Creek as ground water seepage – not single-point discharge. This application will create a stable hydrology that reduces large influxes of water into the creek that erode banks and carries sediment downstream. Because the 'level spreader' system runs through an area of re-established prairie, space that would have normally been used for standard detention practices, now becomes an amenity for people as well as valuable wildlife habitat that can be enjoyed by all visitors.

Case Study 3:
Matteson Village Hall, Matteson, Illinois

The Matteson Village Hall and 6-acre Village Green represent a comprehensive model for implementing sustainable technologies into a new development project. The Village Hall and Green is a public oasis and gathering space within a proposed new town center that will ultimately consist of government, office, and retail land uses.

The sustainable stormwater system designed and implemented for the Village Green mimics natural processes that are self-supporting in order to minimize impacts on the surrounding environment. The ultimate goals of the design were to eliminate the need for a traditional storm water system, reduce downstream flooding impacts, and improve local and regional water quality.

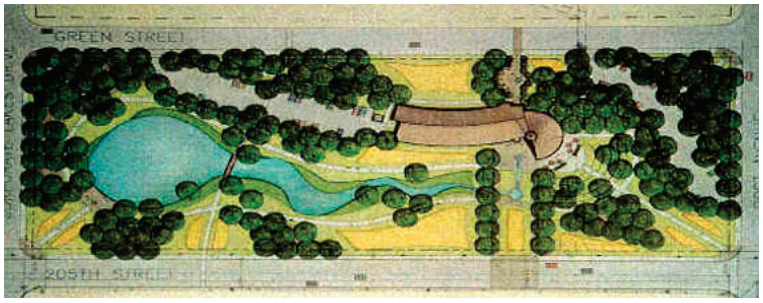


Fig. D3-1: Site Plan

Fig. D3-2: Village Hall and Landscape

Fig. D3-3: Bridge and Village Hall

Fig. D32-4: Bridge

Fig. D3-5: Pedestrian Path

Case Study 4:
Brengel Center - Johnson Controls, Milwaukee, Wisconsin

Named one of the first LEED-certified green buildings by the US Green Building Council, the Brengel Center utilizes off-the-shelf technology and common sense practices to cut energy use.

- Owner/Contact Johnson Controls Inc.
  Phone (414) 524-4000
- Location 507 East Michigan Street
  Milwaukee, Wisconsin
- Size 130,000 sf on seven floors
- Use Administration and office technology showcase center
- Cost $16,900,000 (approx. $130/sf)
- Completed March 2000
- Architect Zimmerman Design Group
- Consultants Structural Engineer - Harwood Engineering Consultants
  Mechanical Engineer - Ring & DuChateau
  Electrical Engineer - Leedy & Petzold Associates LLC
- Contractor M.A. Mortenson

Fig. D4-1: Exterior View

Issues	Response Highlights
Site	An example of urban redevelopment. Minimized footprint. Located near multiple bus routes. Open courtyard green in city center. Bicycle racks and showers for employees.
Building & Energy Use	High use of natural daylighting for energy efficiency. High shade, efficient window system. Lighting uses T-5 lamps high output with fewer fixtures. Mechanical and electrical systems designed for maximum efficiency includes Intelligent Control System. Roof-mounted weather system for accurate energy applications. Building commissioning to verify and calibrate systems to operate as designed. Storage and collection of recyclables (in kitchen space on each floor). Water efficient fixtures reduce use by 20%. Rainwater recovery system in cooling towers.
IEQ	Personalized Environments® for employee control, comfort, and productivity. Natural daylighting and views for energy efficiency, employee satisfaction, and productivity. Occupancy satisfaction measurement system via Intranet. CO_2 and VOC monitoring through building automation systems. Smoking ban in building and courtyard.
Materials	Resource re-use, many building materials re-used from old building (re-used concrete forms). Open ceilings for decreased materials used.
Construction	Aggressive construction waste management plan.

Energy saving strategies and an opportunity to showcase their own flagship line of facility control products were at the heart of the Brengel Technology Center design. Zimmerman Design Group and an in-house team at Johnson Controls integrated off-the-shelf technology and common sense ideas to offer energy efficiency, comfort, and flexibility. From the exterior, the building takes on the traditional lines of nearby buildings constructed in the early 1900s. Inside, it's engineered to provide its 400 occupants a great deal of control over their workspace environment.

According to the Center for Building Performance and Diagnostics, uncomfortable temperatures are the most common complaints about office environments. Overheated or overcooled spaces are not only uncomfortable, they waste energy. To overcome this, environmentally responsive workstations (ERWs) were installed, which let employees adjust temperature, air flow, task lighting and background noise masking to their liking. Sensors switch off the functions when workstations are empty. Employees can also give feedback about their comfort level directly from their desktops to the building operator, so that temperature and airflow can be adjusted by building zone if needed.

Metasys®, Johnson Controls direct digital control system (DDC), integrates the center's HVAC, lighting, security, and fire systems for optimum energy and cost savings. Using the DDC, the building operator adjusts the volume of fresh air brought inside based on the number of people in the building, rather than its size. The Brengel Center's information gathering systems are capable of load profiling and sub-metering energy, so that the owner can negotiate energy costs with suppliers during peak demand.

Indirect and abundant natural light helps to conserve energy and provide a more pleasant working environment for employees. Built spaces have been constructed on the building's interior so that all employees can share windows and a view to the outside. Offices are fitted with pendant-mounted fluorescent fixtures that reflect light off the exposed interior structure of the building, which has been left ceilingless so that visitors can see controllers and actuators and has the added benefit of saving materials. The windows are specially selected high-performance, low-E coated glass that reduces glare. With fewer lights necessary and highly efficient windows, Johnson is able to gain energy cost savings and lower overall operating costs.

Building operators can remotely interact with critical building systems and quickly respond to occupant complaints. Exterior and interior lighting can be triggered by means of a laptop computer or even a cell phone.

Johnson Controls spent $16.9 million building the Brengel Center, according to information on their own website (www.johnsoncontrols.com/cg-values/brengel.htm). This cost is in line with the average construction cost of $125 per square foot, but energy-saving strategies will reduce operating expenses.

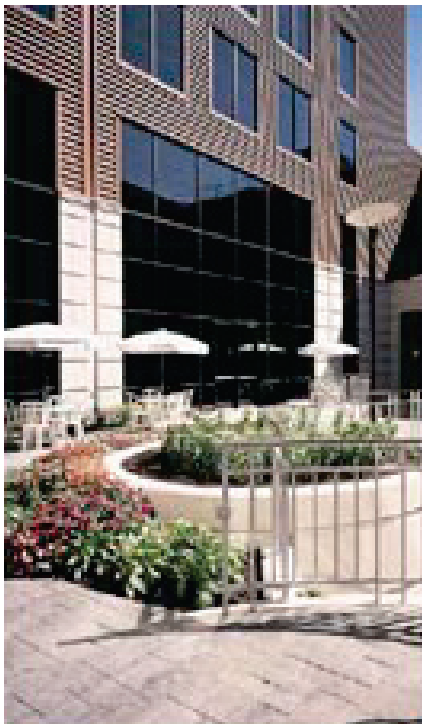


Fig. D4-2: Courtyard

Case Study 5:
Steelcase, Dutton, Michigan

This wood-furniture manufacturing facility is the first office/factory to achieve certification under the US Green Building Council's LEED program. CEO James Hackett has stated that "...the development of this new manufacturing facility represents our commitment to promoting a healthy environment for our community."

- Owner/Contact Steelcase Inc.
- Location Dutton, Michigan
- Size 606,400 on one level, 66 acre site
- Use Manufacturing and office
- Cost $26,400,000 (approx. $43.5/sf)
- Completed April 2001
- Architect URS Corporation, Grand Rapids
- Consultants Structural/Mechanical/Electrical Engineering - URS Corporation
- Contractor Owen-Ames-Kimball

Issues	Response Highlights
Site	Nearly 1,000 drought-resistant trees planted in parking area to reduce heat island. Water efficient landscaping species chosen.
Building & Energy Use	Waste heat recovery system removes and filters hot air in summer, returns it into building in winter. Skylights aid in natural daylighting of production areas. Building automation and monitoring system commissioned for peak efficiency. Modular system saves materials and time. Water efficient plumbing fixtures. Rainwater recovery system feeds the irrigation system. Landscape requires no additional watering.
IEQ	Each air handler on monitor for most efficient operation. Smoking ban in effect.
Materials	Use of post-consumer recycled materials for 24% of building materials. All structural steel consists of 95% post-consumer recycled materials.
Construction	Construction waste management plan.

Steelcase's desire to achieve LEED certification added between 3.5 and 5% to the initial cost of the project. The added cost was considered worth it to the owner, due to efficiency of operating costs, employee satisfaction and productivity, and marketing value.

The system of concrete panels originally chosen for LEED reasons not only helped meet energy efficiency standards, but shortened erection time. The 8' x 28' wall panels are 12 1/2" thick. Manufactured locally, the panels are composed of an 8" structural wythe, 2" of insulation and a 2 1/2" random-rib, or raked, pattern face with exposed limestone aggregate.

In addition, Steelcase has implemented changes to its manufacturing processes, reducing VOC emissions by 380 tons or 70% per year, even as production increases. US law regulates these emissions by granting manufacturing facilities a limited number of "credits" per year. Companies not using all their credits may transfer or sell them. Steelcase has decided not to sell the approximately 340 emissions credits (worth $3 to $4.5 million over five years), instead eliminating them and the environmental damage they represent from the market.

Fig. D5-1: View of Building in Distance

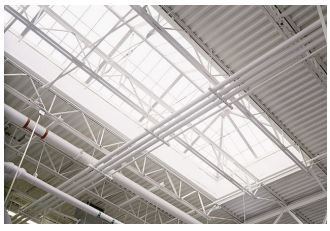


Fig. D5-2: Daylight from Skylights

Fig. D5-3: Entrance and Materials

Case Study 6:
Schlitz Audubon Nature Center, Bayside, Wisconsin

Situated on 185 acres along the shores of Lake Michigan, the new Dorothy K. Vallier Environmental Learning Center at Schlitz Audubon Nature Center opened to the public in May of 2003. This beautiful 39,000 square foot "green" facility is one of the most environmentally sensitive buildings in the nation.

- Owner/Contact: Schlitz Audubon Nature Center
- Location: Bayside, Wisconsin
- Size: 39,000 sf
- Use: Educational
- Cost: $5,400,000 (approx. $138/sf)
- Completed: May 2003
- Architect: The Kubala Washatko Architects, Inc.
- Consultants: Structural Engineer - Harwood Engineering Consultants
  Mechanical Engineer - Wenninger Company
  Electrical Engineer - Roman Electric
- Contractor: Jansen Construction

Issues	Response Highlights
Site	Utilized a deteriorated portion of site. Natural clearing to preserve trees. Orientation for Daylighting. Water efficient landscaping.
Building & Energy Use	High use of natural daylighting for energy efficiency. Geoexchange heat pumps for heating and cooling. Natural and heat recovery ventilation. Low-flow, low water usage plumbing fixtures. Waterless urinals. Photovoltaic generation of electricity. Thicker wall construction for greater insulation values. Building mass stores and releases energy, mitigating temperature swings. Operable windows.
IEQ	Natural ventilation and daylighting. Low VOC finishes. Two week flushout before occupancy.
Materials	Site harvested lumber for timber frame. Use of local materials to reduce transportation impact. Use of recycled content materials. Exposed concrete floor eliminates additional finish material.
Construction	Aggressive construction waste management plan. Most destructive parts of construction during winter.

The building was designed to preserve the natural sanctuary of the site and educates the public about sustainability and the natural world. The primary design challenge was to integrate sustainable design principles into a highly functional and aesthetically pleasing building.

Numerous sustainable elements were designed into the building. A LEED Platinum rating is currently pending. Natural daylight fills the classrooms and hallway from two sides. This design provides a more pleasant learning environment and reduces demand for electric lighting. Automatic sensors turn lights on and off. Classroom windows and hallway transom windows may be opened to allow natural ventilation and improved cross ventilation. The naturally ventilated Great Hall incorporates site harvested spruce timbers. Sustainably harvested wood is used throughout. Outdoor porches are supported by logs cut from White Pine trees originally planted in the 1940s by naturalist Aldo Leopold. A roof-mounted10kw photovoltaic system provides up to 10% of facility energy needs. A geothermal heating system supplies the buildings heating and cooling needs.

Fig. D6-1: View at Entrance

Fig. D6-2: Roof Area with integrated Photovoltaics

Other Case Study Examples

These projects are representative of the intent behind the Guide for the EDZ. More information of these projects is available at the links listed with the project examples.

EPA Research Triangle Park Campus, North Carolina

1.2 million square feet are housed on 1 quarter mile of land. A full range of sustainable site and building design criteria have guided all development of the site. Competed in 2003, this project takes sustainable design to a new scale, while creating the built environment in concert with the natural landscape and ecosystem. All stormwater run-off is naturally treated on site by plant material to remove contaminants. Natural woodlands and wildflowers are used instead of traditional turf grass. All buildings utilize sustainable building practices, materials, and systems.

Project Information: www.epa.gov/rtp

Herman Miller Market Place, Zeeland, MI

The goal of the two-story, 95,000 square foot Herman Miller Market Place was to create a prototype office environment that supports progressive business-place thinking within a sustainable framework. The expectation of speculative office building was nothing less than that it be a great place to work. The target was an HVAC system that requires 40% lower energy cost than what is budgeted in the baseline model ASHRAE 90.1-1999. Current operating records show this goal is being met.

Project Information: www.usgbc/Docs/Certified_Projects/0089%20Scorecard-Final.pdf

ADC Telecommunications World Headquarters, Eden Prairie, Minnesota

Located on 90 acres of land this development currently incorporates 500,000 square feet and will have 1,200,000 square feet. Manufacturing, corporate training facilities, offices, and research and development facilities are accommodated on a site containing natural wetlands. Natural daylighting is utilized to a great extent. Personal energy modules as well as night efficient lighting and mechanical systems. The building was recently awarded the 2002 First Place Technology Awards from Minnesota ASHRAE and the Regional ASHRAE association for new commercial buildings due to its innovative, efficient, and effective energy and technology systems design.

Project Information: www.hga.com/experience/corporate/adc_world_headquarters/

For further case study resources see www.buildinggreen.com.

Appendix E: Information Sources and Bibliography

Information Sources

Web Sites

www.afcee.brooks.af.mil/green/facilitiesguide/erfguide.pdf *(Air Force Green Facilities Guide*, U.S. Air Force)

www.ansi.org/public/iso14000/default.htm (ANSI's ISO 14000 addressing environmental management systems, environmental auditing, environmental labeling, environmental performance evaluation, and life cycle assessment)

www.bpcnet.com/codes/wauwatosa/ (City of Wauwatosa Municipal Code)

www.daylighting.com (Daylighting Collaborative)

www.dnr.state.wi.us/org/water/wm/nps/rg/WSJ.htm (Department of Natural Resources, Recycled Building Material Used to Make Water Garden)

http://ebuild.com (Environmental Building News (EBN)

www.ecw.org (Energy Center of Wisconsin)

www.energystar.gov (U.S. EPA energy efficient solutions)

www.epa.gov (U.S. Environmental Protection Agency, including their Comprehensive Procurement Guidelines)

www.greenbuilder.com (Sustainable Building Sourcebook)

www.greenbuilding.com (source information on LEED projects including case studies of completed certified projects)

www.greenguide.com (The Green Building Resource Guide, extensive listing of environmentally preferable products and manufacturers)

www.greenseal.org (Green Seal, Inc., third-party certification service and non-profit promotional site with standards for green products)

www.HOK.com/sustainabledesign (HOK Healthy and Sustainable Materials Database)

www.lowimpactdevelopment.org (Low Impact Development (LID) Center)

www.nps.gov/dsc/dscgncnstr/ (National Park Service Sustainable Design and Construction Database)

www.oikos.com (Green building source and bookstore, including Resources for Environmental Design Index (REDI))

www.scs1.com/index.html (Scientific Certification Systems used to verify environmental claims made by manufacturers of products)

www.sustainable.doe.gov and www.eren.doe.gov (U.S. Department of Energy Center of Energy Efficiency and Renewable Energy Network Excellence for Sustainable Development)

www.sustainabledesignguide.umn.edu (Minnesota Sustainable Design Guide)

http://tradecenter.ntis.gov/ (Green Specifications Research, Final Report)

www.usgbc.org (U.S. Green Building Council and LEED™ information)

www.wastecapwi.org (WasteCap Wisconsin, includes links to businesses and agencies in Wisconsin for recycled materials, assistance, materials exchange, recycling programs and environmentally preferable purchasing programs)

http://www.wbdg.org/index.asp (The Whole Building Design Guide)

www.wgba.org (Wisconsin Green Building Alliance)

Limited Product Category Web Sites

Carpets
www.carpet-rug.com (Carpet and Rug Institute)

Paints
www.greenseal.org (Third-party Certification Service, Non-profit promotional site with standards for green products)

Pavers
www.unilock.com (Unilock permeable paving)
www.paveloc.com (Paveloc Industries permeable paving)

Wood Products
www.ansi.org *(ANSI A208 and HPVA)*

Architectural Sealants
www.baaqmd.gov (Bay Area Air Quality Management District)

Construction Adhesives
www.aqmd.gov (South Coast Air Quality Management District)

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